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Claims

[c1] 1. A cold cathode fluorescent flat lamp, comprising:
a cavity, having a light exit plane;
a discharge gas, disposed inside the cavity;
a plurality of electrodes, disposed inside the cavity or outside the cavity;
a fluorescence layer, disposed on an inner wall of the cavity; and
a first light control layer, disposed over the fluorescence layer corresponding to the light exit plane.

[c2] 2. The cold cathode fluorescent flat lamp of claim 1, wherein the cavity comprises:
a first substrate;
a second substrate, disposed over the first substrate; and
a side bar, disposed between the first substrate and the second substrate and connected toanedge of the first substrate and an edge of the second substrate.

[c3] 3. The cold cathode fluorescent flat lamp of claim 1, wherein the discharge gas comprises an inert gas.

[c4] 4. The cold cathode fluorescent flat lamp of claim 3,

wherein the inert gas comprises xenon (Xe), neon (Ne) or argon (Ar).

[c5] 5. The cold cathode fluorescent flat lamp of claim 1, wherein each of the electrodes comprise a plurality of protrusions.

[c6] 6. The cold cathode fluorescent flat lamp of claim 5, wherein the cavity is divided by the electrodesinto at least one sub-cavity, and the sub-cavity is divided by the protrusions of the electrodesinto a plurality of first light emitting areas and a plurality of second light emitting areas disposed between the first light emitting areas.

[c7] 7. The cold cathode fluorescent flat lamp of claim 6, wherein the first light control layer is disposed over the fluorescence layer corresponding to the first light emitting area.

[c8] 8. The cold cathode fluorescent flat lamp of claim 1, wherein a material of the first light control layer comprises a fluorescence material.

[c9] 9. The cold cathode fluorescent flat lamp of claim 1, wherein a material of the first light control layer and a material of the fluorescence layer are same.

[c10] 10. The cold cathode fluorescent flat lamp of claim 1,

wherein the first light control layer comprises single patterned film layer or multi-layer stacked patterned film layer.

[c11] 11. The cold cathode fluorescent flat lamp of claim 1, further comprising:
a second light control layer, disposed over the fluorescence layer corresponding to the second light emitting area.

[c12] 12. The cold cathode fluorescent flat lamp of claim 11, wherein a material of the second light control layer comprises fluorescence material.

[c13] 13. The cold cathode fluorescent flat lamp of claim 11, wherein a material of the second light control layer and a material of the fluorescence layer are same.

[c14] 14. The cold cathode fluorescent flat lamp of claim 11, wherein the second light control layer comprises single patterned film layer or multi-layer stacked patterned film layer.

[c15] 15. A cold cathode fluorescent flat lamp, comprising:
a cavity, having a light exit plane and a bottom surface, wherein the light exit plane is opposite to the bottom surface;
a discharge gas, disposed inside the cavity;

a plurality of electrodes, disposed inside the cavity or outside the cavity;

a fluorescence layer, disposed on an inner wall of the cavity; and

a second light control layer, disposed over the fluorescence layer on and corresponding to the bottom surface.

[c16] 16. The cold cathode fluorescent flat lamp of claim 15, wherein the cavity comprising:

a first substrate;

a second substrate, disposed over the first substrate top; and

a side bar, disposed between the first substrate and the second substrate between and connected to an edge of the first substrate and an edge of the second substrate.

[c17] 17. The cold cathode fluorescent flat lamp of claim 15, wherein the discharge gas comprises inert gas.

[c18] 18. The cold cathode fluorescent flat lamp of claim 15, wherein the inert gas comprises xenon (Xe), neon (Ne) or argon (Ar).

[c19] 19. The cold cathode fluorescent flat lamp of claim 15, wherein each of the electrodes comprises a plurality of protrusions.

[c20] 20. The cold cathode fluorescent flat lamp of claim 19,

wherein the cavity is divided by the electrodesinto at least one sub-cavity, and the sub-cavity is divided by the protrusions of the electrodesinto a plurality of first light emitting areas and a plurality of second light emitting areas disposed between the first light emitting areas.

[c21] 21. The cold cathode fluorescent flat lamp of claim 20, wherein the second light control layer is disposed over the fluorescence layer corresponding to the second light emitting area.

[c22] 22. The cold cathode fluorescent flat lamp of claim 15, wherein a material of the second light control layer comprises a fluorescence material.

[c23] 23. The cold cathode fluorescent flat lamp of claim 15, wherein a material of the second light control layer and a material of the fluorescence layer are same.

[c24] 24. The cold cathode fluorescent flat lamp of claim 15, wherein the second light control layer comprises single patterned film layer or multi-layer stacked patterned film layer.